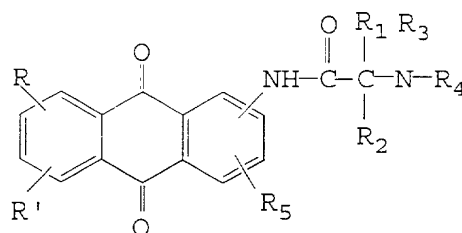


What is Claimed is:

1. A compound of the following formula (I):

5



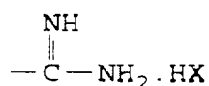
(I)

wherein:

10 R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> each independently is hydrogen, hydroxy, amino or C<sub>1-6</sub> alkyl group;

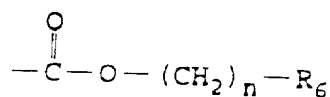
R<sub>4</sub> is hydrogen, C<sub>1-18</sub> alkyl carbonyl, C<sub>1-6</sub> alkyl group substituted by at least a functional group, said functional group is selected from the group consisting of hydroxy, amino, carbado, carbazoyl, formyl, carbamyl,

15 carboxyl, carbonyl, or a group of the following formula

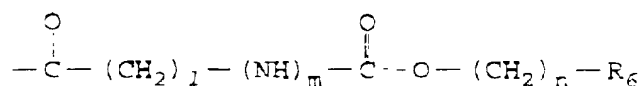


wherein X is fluoro, chloro, bromo, iodo, a group of the following

20 formula



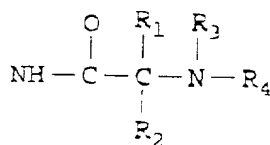
wherein n is 1, 2, or 3, R<sub>6</sub> is hydrogen or arylalkyl, or a group of the following formula



5

wherein l is 1, 2, or 3, m is 0 or 1, n and R<sub>6</sub> is defined as the above;

R<sub>5</sub> is hydrogen amino or a group of the following formula

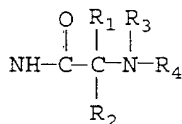


10

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are defined as the above; and

R and R' each independently is hydrogen, hydroxyl, amino, C<sub>1-6</sub> alkyl group or a group of the following formula

15



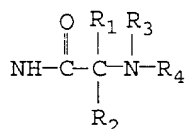
wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are defined as the above.

20

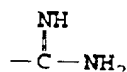
2. The compound of claim 1, wherein R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> each independently is hydrogen or amino group.

3. The compound of claim 1, wherein R and R' each independently is hydrogen, amino group or a group of the following formula

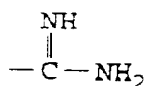
25



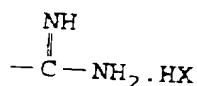
- 5 wherein R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> each independently is hydrogen or amino group; and R<sub>4</sub> is hydrogen or a group of the following formula.



- 10 4. The compound of claim 1, wherein R<sub>1</sub> and R<sub>2</sub> is hydrogen.  
5. The compound of claim 1, wherein R<sub>4</sub> is a group of the following formula.

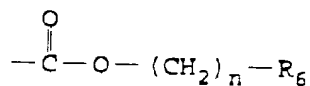


- 15 6. The compound of claim 1, wherein R<sub>4</sub> is a group of the following formula



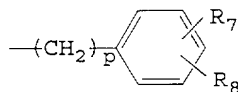
- 20 wherein X is fluoro, chloro, bromo or iodo.

7. The compound of claim 1, wherein R<sub>4</sub> is a group of the following formula



25

wherein n is 1, 2 or 3; R<sub>6</sub> is hydrogen, 1-naphthyl, 2-naphthyl or a group of the following formula



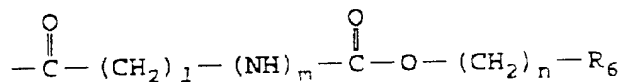
5

wherein p is 0, 1, 2, or 3; R<sub>7</sub> and R<sub>8</sub> each independently is hydrogen, hydroxyl, carbado, carbamyl, carboxyl, carbonyl, formyl, mercapto, methylthio, thioureido, thiocyanato, sulfoamoyl, sulfo, phosphono, fluoro, chloro, bromo, iodo, cyano, trifluoro methyl, C<sub>1-6</sub> alkyl group, C<sub>1-6</sub> alkoxy group, dimethyl amino, and benzyloxy, C<sub>1-18</sub> alkoxycarbonyl, or arylmethoxycarbonyl, wherein said aryl group is phenyl, 2-methoxyphenyl, 4-methoxyphenyl, 2-fluorophenyl, 4-fluorophenyl, 2-chlorophenyl, 4-chlorophenyl, 2-bromophenyl, 4-bromophenyl, 1-naphthyl, 2-naphthyl, 9-fluorenyl, or pentafluorophenyl; and a pharmaceutically acceptable salt thereof.

10

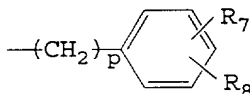
15

8. The compound of claim 1, wherein R<sub>4</sub> is a group of the following formula



20

wherein l is 1, m is 0, n is 1; R<sub>6</sub> is a group of the following formula



wherein p is 0 or 1; R<sub>7</sub> and R<sub>8</sub> each independently is hydrogen, hydroxyl, carbamyl, carboxyl, carbonyl, formyl, mercapto, C<sub>1-6</sub> alkyl group, C<sub>1-6</sub> alkoxy group, dimethyl amino, and benzyloxy, C<sub>1-18</sub> alkoxycarbonyl, or arylmethoxycarbonyl, wherein said aryl group is phenyl, 2-methoxyphenyl, 4-methoxyphenyl, 2-fluorophenyl, 4-fluorophenyl, 2-chlorophenyl, 4-chlorophenyl, 2-bromophenyl, 4-bromophenyl, 1-naphthyl, 2-naphthyl, 9-fluorenyl, or pentafluorophenyl; and a pharmaceutically acceptable salt thereof.

9. The compound of claim 1, wherein said formula (I) compound is 1-benzylcarbamidoacetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

10. The compound of claim 1, wherein said formula (I) compound is 4-amino-1-guanido acetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

11. The compound of claim 1, wherein said formula (I) compound is 5-amino-1-guanido acetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

12. The compound of claim 1, wherein said formula (I) compound is 2-guanidinoacetamido anthraquinone; and a pharmaceutically acceptable salt thereof.

13. The compound of claim 1, wherein said formula (I) compound is 4-amino-1-benzyl carbamidoacetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

14. The compound of claim 1, wherein said formula (I) compound is 1-amino-2-guanidoacetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

15. The compound of claim 1, wherein said formula (I) compound is 6-amino-2-guanido acetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

16. The compound of claim 1, wherein said formula (I) compound is 2,6-di(guanidino acetamido)anthraquinone; and a pharmaceutically acceptable salt thereof.

17. The compound of claim 1, wherein said formula (I) compound is 2-benzyl carbamidoacetamidoanthraquinone; and a pharmaceutically acceptable salt thereof.

18. The compound of claim 1, wherein said formula (I) compound is 1,2-di(guanidino acetamido)anthraquinone; and a pharmaceutically acceptable salt thereof.

19. An pharmaceutical composition for inhibiting the activities of cancer cells , which comprising an effective amount of formula (I) compound as described in claim 1, and a pharmaceutically acceptable carrier.

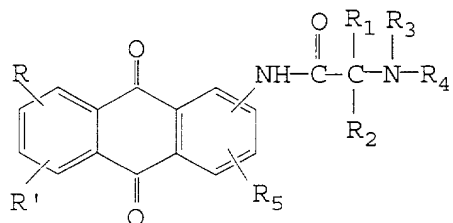
20. The pharmaceutical composition of claim 19, which is used for curing lung cancer, leukemia or brain cancer.

21. A pharmaceutical composition with anti-virus activity, which comprising an effective amount of formula (I) compound as described in claim 1, and one or more pharmaceutically acceptable carriers.

22. The pharmaceutic composition of claim 21, which is used for curing AIDS.

23. A method for preparing a compound of the following formula (I),

5

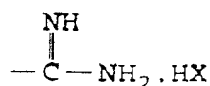


wherein:

10  $R_1$ ,  $R_2$  and  $R_3$  each independently is hydrogen, hydroxy, amino or  $C_{1-6}$  alkyl group;

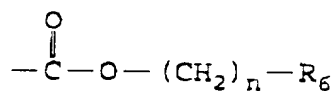
$R_4$  is hydrogen,  $C_{1-18}$  alkyl carbonyl,  $C_{1-6}$  alkyl group substituted by at least a functional group, said functional group is selected from the group consisting of hydroxy, amino, carbado, carbazoyl, formyl, carbamyl,

15 carboxyl, carbonyl, or a group of the following formula



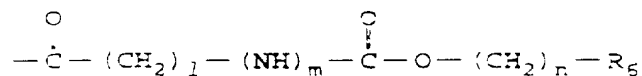
wherein X is fluoro, chloro, bromo, iodo, a group of the following

20 formula



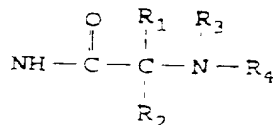
wherein n is 1, 2, or 3,  $R_6$  is hydrogen or arylalkyl, or a group of the

25 following formula



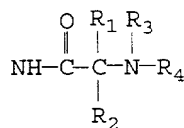
wherein l is 1, 2, or 3, m is 0 or 1, n and R<sub>6</sub> are defined as the above;

- 5 R<sub>5</sub> is hydrogen amino or a group of the following formula



- 10 wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are defined as the above; and

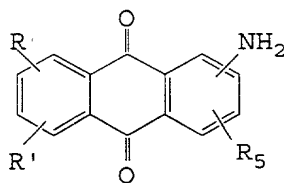
R and R' each independetly is hydrogen, hydroxyl, amino, C<sub>1</sub>-6 alkyl group or a group of the following formula



- 15

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are defined as the above, which comprising:  
a compound of the following formula (II)

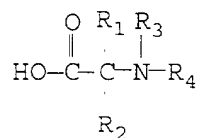
- 20



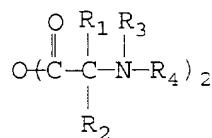
(II )



wherein n, R and R' are defined as the above with a compound of the following formula (III) or formula (IV)



(III)



(IV)

wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> are defined as the above, in the presence of a coupling agent to proceed a condensation reaction.

24. The method of claim 23, wherein said coupling agent is N,N'-diisopropyl-carbodiimide, N,N'-dicyclohexyl carbodiimide, ethyl chloro- formate, carbony diimidazole or ECDI in a solvent.